

In the Claims:

1. (Currently Amended) A surgical instrument holder comprising:
 - a) a head assembly having a shank with a first driveable end and second coupling end, the second end comprising a coupling device having an interface for receiving a surgical instrument and held in functional assembly to the shank by a releasable locking mechanism comprised of a locking ring slideably disposed about the shank, a spring biased against the coupling device by the locking ring, and a connection ring retaining the locking ring in a fixed position during use; and
 - b) a drive spindle assembly connected to the head assembly so as to transmit torque therethrough, the spindle assembly comprising an elongated drive spindle, ~~high-precision~~ bearings and a cylindrical tube, wherein the drive spindle is releasably mounted to an end of the spindle assembly and is supported for rotation within the cylindrical tube by the ~~high-precision~~ bearings disposed therebetween and held in place at least in part by the shank, the bearings precisely controlling the position of a surgical instrument affixed thereto; and
 - c) wherein further, the connection ring provides a common quick-release connection with the head assembly and the drive spindle assembly, whereupon unlocking of the connection ring ~~device~~ enables quick disassembly of the connection ring, spring, locking ring, and drive spindle assembly for cleaning and component sterilization.

2. (Previously Presented) The surgical instrument holder of claim 1 wherein the locking ring of the releasable locking mechanism is moveable in a locking direction to lock an instrument onto the interface.
3. (Previously Presented) The surgical instrument holder of claim 1 wherein the connection ring comprises at least one pin mounted in a coupling sleeve against which the spring is biased by the locking ring, the sleeve being slideable about the shank so as to operate a ball-detent.
4. (Previously Presented) The surgical instrument holder of claim 1 wherein a handle is attached to the first end of the elongated spindle assembly.
5. (Currently Amended) The surgical instrument holder of claim 1 wherein the spindle is held within a spindle tube by ~~precision ball~~ the bearings ~~which provide~~ providing precision rotation of the spindle with the tube, and wherein the tube is provided with position sensors, placed at pre-determined locations on the tube, thereby enabling the instrument holder to participate in the communication of position information.
6. (Previously Presented) The surgical instrument holder of claim 1 wherein the interface is a recess in the coupling end of the shank.
7. (Previously Presented) The surgical instrument holder of claim 6 wherein the recess is cylindrical and coaxial with a central axis of the shank.

8. (Previously Presented) The surgical instrument holder of claim 7 wherein a chamfered surface is disposed within the recess to align an instrument axially.

9. (Previously Presented) The surgical instrument holder of claim 1 wherein the spring is a helical compression spring.

10. (Previously Presented) The surgical instrument holder of claim 2 wherein the locking ring is disposed in the coupling end of the shank.

11. (Previously Presented) The surgical instrument holder of claim 2 wherein the connection ring activates at least one ball-detent.

12. (Previously Presented) The surgical instrument holder of claim 11 wherein the connection ring activates at least two circumferentially spaced apart ball-detents.

13. (Currently Amended) The surgical instrument holder of claim 2[[,]] wherein the locking direction is toward the coupling end of the shank.

14. (Previously Presented) The surgical instrument holder of claim 1 wherein the connection ring cooperates with a bayonet slot to lock the connection ring on the shaft.

15. (Previously Presented) The surgical instrument holder of claim 14 wherein the pin of the connection ring locks in the bayonet slot.

16. (Previously Presented) The surgical instrument holder of the claim 15 wherein the bayonet slot is disposed on the shank.

17. (Previously Presented) The surgical instrument holder of claim 11 wherein the ball-detent comprises a ball received into an annular recess in the instrument holder, the locking component sliding over the ball detent to bias a ball into the recess to lock the shank onto the drive spindle in a manner to lock the cover assembly including the bearings in place.

18. (Previously Presented) The surgical instrument holder of claim 1 wherein the interface is a recess intersected by a transverse slot in which a wall of the slot engages a corresponding surface of the instrument.

19. (Previously Presented) The surgical instrument holder of claim 18 wherein the recess includes a seat shaped to receive the end of an instrument about its circumference.

20. (Previously Presented) The surgical instrument holder of claim 1 wherein the shank is hollow along its length so as to provide a channel facilitating chip removal.

21. (Previously Presented) The surgical instrument holder of claim 1 wherein the tube includes position sensors mounted on the spindle which participate in the communication of position information to a computer to aid in computer assisted surgery.

22. (Previously Presented) The surgical instrument holder of claim 1 wherein a frustoconical widened part provides a grip for the thumb and index finger for pulling the locking ring back counter to the action of the spring in order to release an instrument fixed on the instrument holder.

23. (Previously Presented) The surgical instrument holder of claim 1 wherein the connection ring permits disconnection of the spindle assembly from the head assembly when a user holds the connection ring having an internal stud against a bias of the spring, then turns the connection ring in such a way that its stud leaves a bayonet catch so as to unlock the connection ring from the catch, the user being able to remove the connection ring from the shank, and then the spring, followed by the locking ring as well.

24. (Currently Amended) A surgical instrument holder comprising:

- a) a head assembly having a shank with a first driveable end and second coupling end, the second end comprising a coupling device having an interface for receiving a surgical instrument and held in functional assembly to the shank by a releasable locking mechanism comprised of a locking ring slideably disposed about the shank, a spring biased against the coupling device by the locking ring, and a connection ring ~~device~~ retaining the locking ring in a fixed position during use, wherein the connection ring comprises at least one pin mounted in a coupling sleeve against which the spring is biased by the locking ring, the sleeve being slideable about the shank so as to operate a ball-detent; and

- b) a drive spindle assembly[[,]] connected to the head assembly so as to transmit torque there through, the spindle assembly comprising an elongated drive spindle, ~~high-precision~~ bearings and a cylindrical tube, wherein the drive spindle is releasably mounted to an end of the spindle assembly and is supported for rotation within the cylindrical tube by the ~~high-precision~~ bearings disposed there between and held in place at least in part by the shank, the bearings precisely controlling the position of a surgical instrument affixed thereto; and
- c) wherein further, the connection ring ~~device~~ provides a common quick-release connection with the head assembly and the drive spindle assembly, whereupon unlocking of the connection ring ~~device~~ enables quick disassembly of the connection ring ~~device~~, spring, locking ring, and drive spindle assembly for cleaning and component sterilization.